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**Fermi National Accelerator Laboratory
Batavia, IL 60510**

**CMS ME1/2 LOWER CATHODE PANEL
COMPONENT SOLDERING
TRAVELER**

Reference Drawing(s)

**Endcap Muon Chamber ME1/2 Final Assembly
5520-ME-368120**

**Endcap Muon Chamber ME1/2 Cathode Panel Assy
Lower Cathode 5520-ME-368124**

Budget Code:**Project Code:****Released by:****Date:****Prepared by:** M. Hubbard, B. Jensen, L. Lee

Title	Signature	Date
TD / E&F Process Engineering	Bob Jensen/Designee	
TD / E&F CMS Assembly	Glenn Smith/Designee	
TD / E&F Technological Physicist	Oleg Prokofiev/Designee	
TD / CMS Project Manager	Giorgio Apollinari/Designee	

Revision Page

Revision	Step No.	Revision Description	TRR No.	Date
None	N/A	Initial Release	N/A	04/26/00

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Ensure appropriate memos and specific instructions are placed with the traveler before issuing the sub traveler binder to production.

1.0 General Notes

- 1.1 White (Lint Free) Gloves (Fermi stock 2250-1800) or Nitrile Gloves (Fermi stock 2250-2040) shall be worn by all personnel when handling all product parts after the parts have been prepared/cleaned.
- 1.2 All steps that require a sign-off shall include the Technician/Inspectors first initial and full last name.
- 1.3 No erasures or white out will be permitted to any documentation. All incorrectly entered data shall be corrected by placing a single line through the error, initial and date the error before adding the correct data.
- 1.4 All Discrepancy Reports issued shall be recorded in the left margin next to the applicable step.
- 1.5 All personnel performing steps in this traveler must have documented training for this traveler and associated operating procedures.
- 1.6 Personnel shall perform all tasks in accordance with current applicable ES&H guidelines and those specified within the step.
- 1.7 Cover the panel/chamber with Mylar when not being serviced or assembled.
- 1.8 Never hand pass anything over a panel as dropped items may damage the panel.

2.0 Parts Kit List

- 2.1 Attach the completed Parts Kit List for the CMS Cathode Panel Component Soldering to this traveler. Ensure that the serial number on the Parts Kit List matches the serial number of this traveler. Verify that the Parts Kit received is complete.

Process Engineering/Designee

Date

3.0 Panel Preparation

Completed

3.1 Acquire the appropriate Lower Cathode Panel as per serial number on the bottom of this traveler. Visually inspect the panel to ensure that there are no damages.

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3.2 Transport the Lower Cathode Panel using the panel transport cart (MD-368764) to the soldering station.

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3.3 Rotate the panel to horizontal with the serial number facing UP and place on the Cathode Panel Component Soldering Station using approved lifting methods.

☐

Technician(s)

Date

X 3.4 Verify all Section 3.0 steps have been properly completed and signed off and the panel is acceptable for further processing.

Lead Person

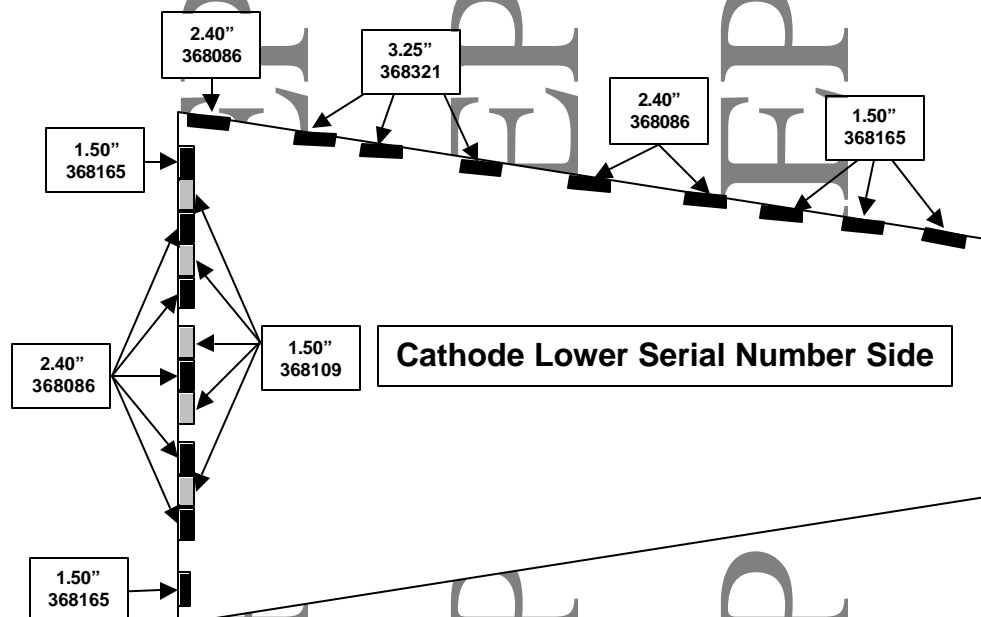
Date

4.0 Panel Soldering (Strip Side)

Completed



- 4.1 Using the Grounding Strip Foil Installation templates layout the panel for Grounding Strip installation. Mark foil installation area lightly using a scribe.



- 4.1.1 Foil layout scribed on left side of panel (9 locations).

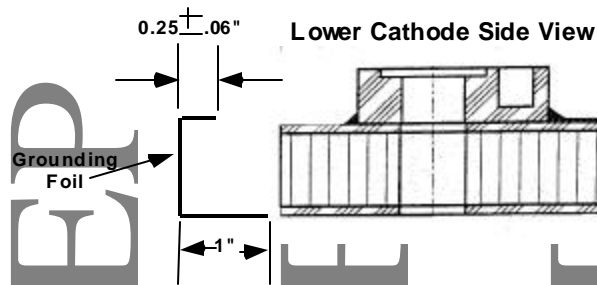


- 4.1.2 Foil layout scribed on Wide end of panel (12 locations).

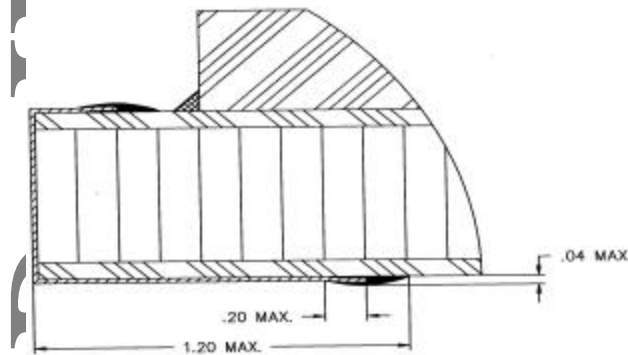


 Technician(s)

 Date



- 4.2 Form all Grounding Foils to the panel as per Dwg ME-368124 and the above diagram, **Excluding** 368109 [5 ea.] which shall protrude out from the end of the panel with only the Serial Number side soldered to the panel as in diagram below.



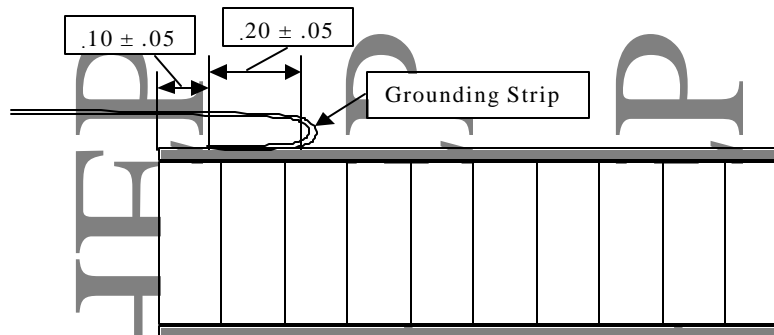
- 4.3 Place a strip of Almit Solder (MA-368391) under the Strips at the top of the panel. Solder the Strips to the top of the panel Only!! Make sure the solder is smooth when cooled. Solder Grounding Strips (368109) [5 ea.] according to Dwg ME-368124 and diagram below. Continue soldering remaining Grounding Strips tops to the panel until all the Grounding Strips have been soldered to the panel.

Note(s):

For 368109 [5 ea.] only;

Ensure that only one end is soldered to the panel on the Serial Number side.

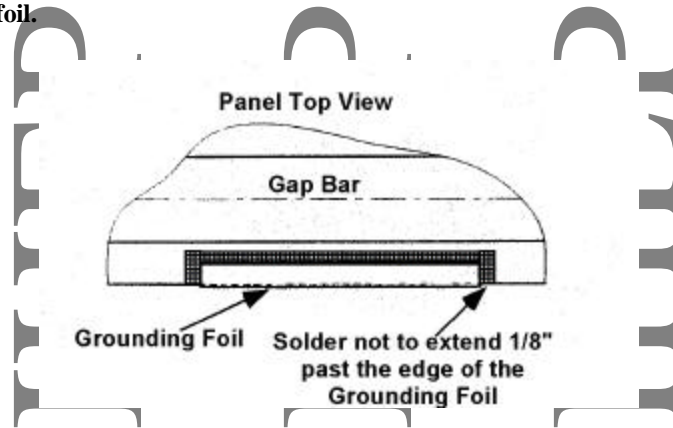
Allow excess foil to stick out past the edge of the panel.



Note(s):

When soldering foil to the panel, ensure that no more than 1/8" exceeds past the foil.

Ensure that after soldering of foil, there are no lumps or excess build up of solder on the panel or foil.



Technician(s)

Date**X**

4.4

Inspect panel to ensure that all components have been installed and/or soldered correctly in accordance with Lower Cathode Panel DWG 368124 and the panel is acceptable for further processing.

Lead Person

Date

April 26, 2000

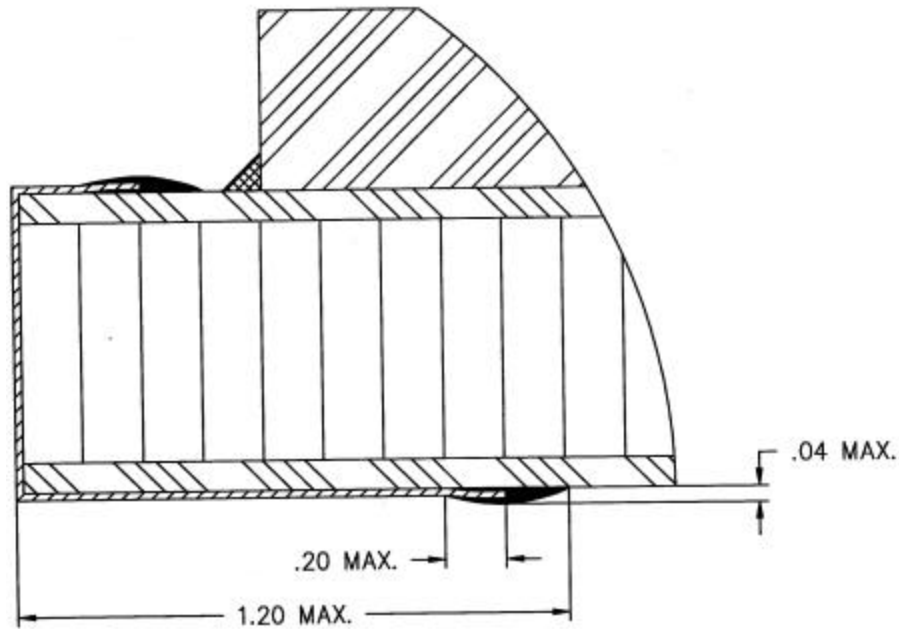
Rev. None

5.0 Panel Soldering (Non-strip Side)Completed ☐

- 5.1 Rotate the Panel so the Non-Serial Number side is facing up, and re-install it onto the Panel Component Soldering Station using approved lifting methods.

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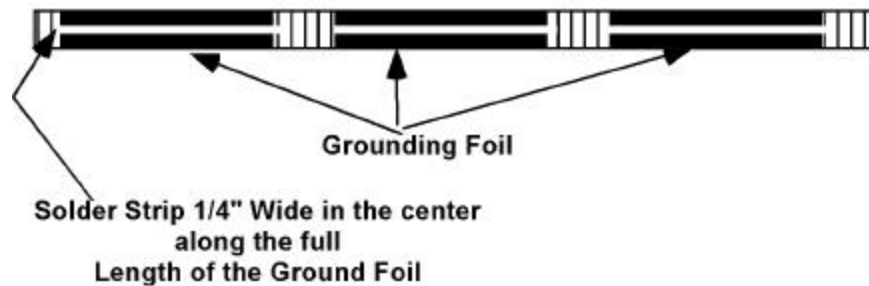
- 5.2 Solder all the Grounding Strips to the Non-Serial Number side of the panel, **Excluding** 368109 [5 ea.] which shall protrude out from the end of the panel.

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- 5.3 Trim away the part of the Grounding Strips that are covering over the bolt holes.

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- 5.4 Solder a 1/4" wide strip in the center along the full length of each Grounding Foil.

☐**Panel Side View w/Grounding Foil**_____
Technician(s)_____
Date

- X

5.5

Inspect panel to ensure that all components have been installed and/or soldered correctly in accordance with Lower Cathode Panel DWG 368124 and the panel is acceptable for further processing.

Lead Person

Date

- 5.6

Transport the completed panel to the Cathode Storage area.

Technician(s)

Date

6.0 Production Complete

XXX

- 6.1 Process Engineering verify that the CMS ME1/2 Cathode Panel Component Soldering (5520-TR-333448) is accurate and complete. This shall include a review of all steps to ensure that all operations have been completed and signed off. Ensure that all Discrepancy Reports, Nonconformance Reports, Repair/Rework Forms, Deviation Index and dispositions have been reviewed by the Responsible Authority for conformance before being approved.

Comments:

Process Engineering/Designee

Date

- 7.0 Attach the Process Engineering "OK to Proceed" Tag on the panel.

Process Engineering/Designee

Date

- 8.0 Proceed to the next major assembly operation as required.